

Name: _____

Decide whether the following situation is a function. Provide enough support to make a convincing case.

A listing of the number of people swimming at a certain beach given the temperature of the water.

this is not a function because the water could be the same temperature several different days and have different numbers of people in the water. Beaches are generally more populated on weekends than week days so that would greatly affect the number of people swimming regardless of the water temperature

water temp (input)	# of people swimming (output)
saturday 72°	97
wednesday 72°	36
Thursday @ noon 80°	50
Thursday @ 4:00 pm 80°	27

not a function because in a function any given input can have 1 and only one output.

What if the listing was for just one day - not multiple days?

The temperature of the water could have been the same at 2 times during the day but have different numbers of people in the water because people are always coming and going and the beach may get more traffic @ certain times so it's still not a function. I agree

Suppose a tank holds 1000 gallons of water that will drain from the bottom of the tank in 10 minutes. The volume of the water, v , remaining in the tank after t minutes can be modeled by:

$$f(x) = 1000 \left(1 - \frac{x}{10}\right)^2$$

$$V(t) = 1000 \left(1 - \frac{t}{10}\right)^2$$

this doesn't exist

(a) What is the domain for v ? Explain.

the input for the function is t and t must be $0 \leq t \leq 10$ because you can't have negative time and you can't use more time than it takes to drain.

(b) What is the range for V ? Explain.

the output for the function must be

$$0 \leq V(t) \leq 1000$$

can't have a negative volume

can't have a volume higher than the tank holds

This doesn't make sense to me that volume is the input and the output because you are talking about the t ... very confused. I think the questions are worded weird.

Volume isn't both. You are correct that t is the input and $V(t)$ is the output. When I say v , I mean $v(t)$. oooohhh okay.

Volume (gallons)

